



Boosting Engineering, Science & Technology™

MDA STEM Outreach Program Review

BEST Robotics, Inc.

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Executive Director**

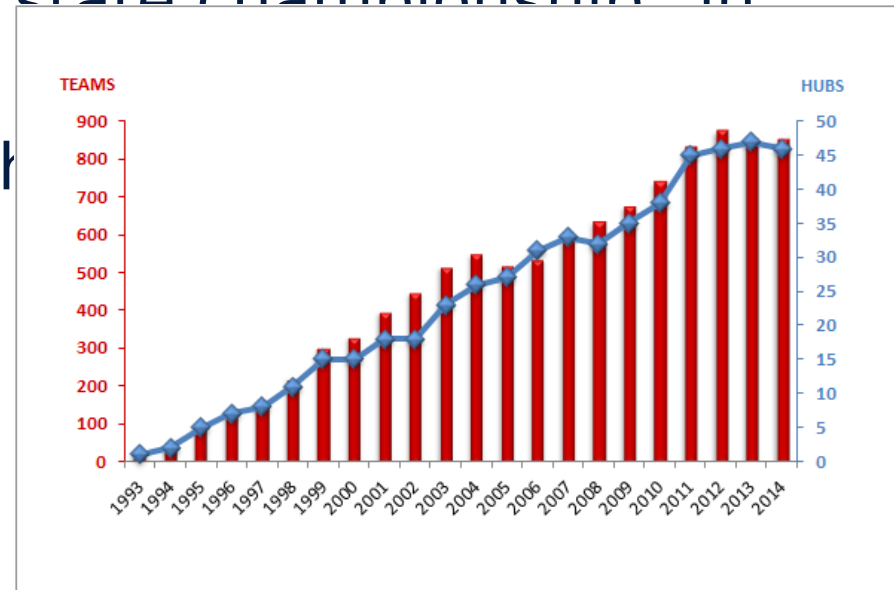
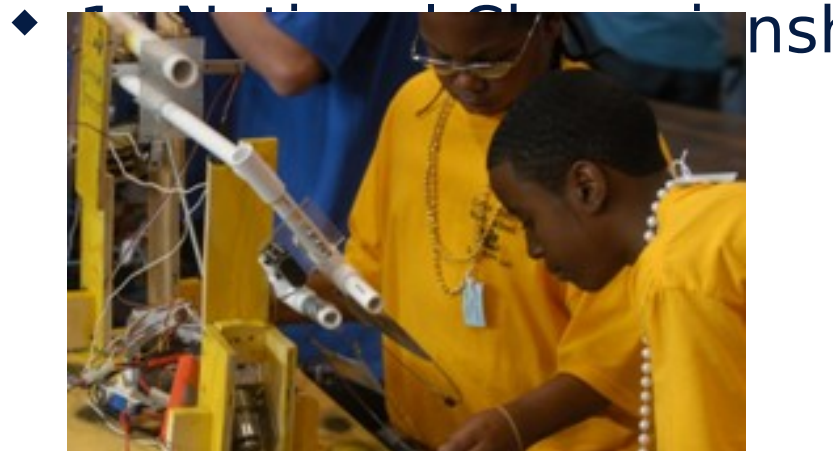
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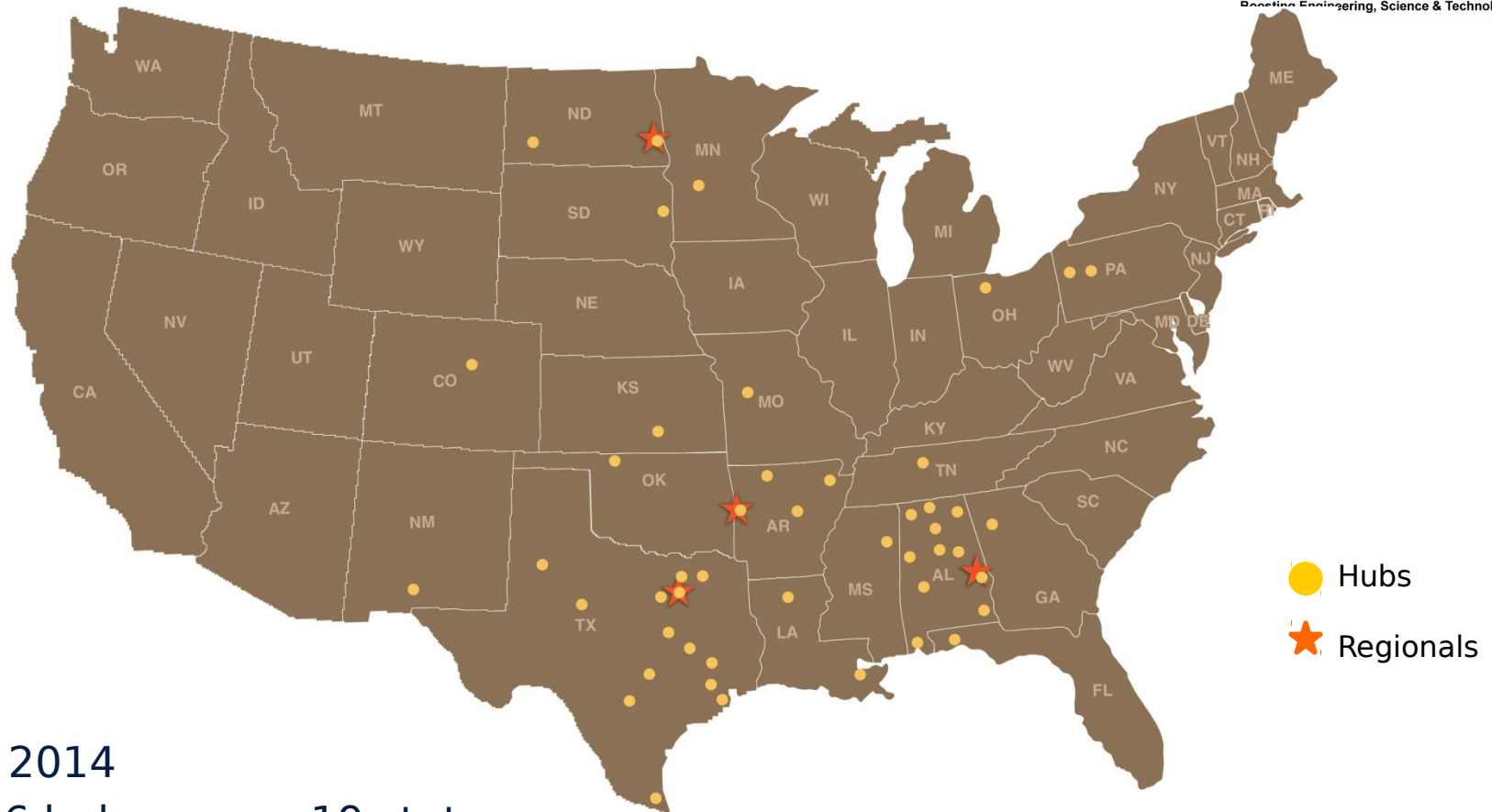


BEST History

- ◆ Started in 1993 by Steve Marum and Ted Mahler
- ◆ First season had 14 teams, 221 students
- ◆ BEST Robotics, Inc. (BRI) incorporated in 1997 as a 501(c)3
- ◆ Texas BEST started as “state championship” in 1995



BEST Scope



For 2014

- ◆ 46 hubs across 19 states
- ◆ 837 teams (~18 teams/hub) across 23 states and Canada
- ◆ > 16,000 students
- ◆ Four (4) regional championships

BEST Program

- ♦ Any school may participate regardless of socio-economic status, size, or location
 - Public, private, charter, and home school groups or organizations
 - Targeted towards middle school and high school students
- ♦ Schools do not pay an entry fee to participate and do not purchase their kits
- ♦ One team per school, but no limit on team size
- ♦ BEST season occurs during the fall semester
- ♦ Annual game theme reflects real-world examples
- ♦ Students are the primary participants and benefactors
 - Student-designed, student-built, student-driven robots
 - Students have the experience, including hands-on manufacturing
- ♦ Mentors from local companies guide the students in the planning and construction of their robot
 - Mentors may not design, build, or compete
 - Mentors are a critical element of a team's success!



BEST Divisions

- ◆ BEST Game Competition
 - Based on robot performance for highest total or average scoring during round robin matches and finals
- ◆ BEST Award
 - Given for excellence in the process of building the robot as well as the extent the teams boost engineering, science, and technology within their school and community
 - Project engineering notebook
 - Marketing presentation
 - Conference exhibit and interview
 - Spirit and sportsmanship
 - Robot performance
- ◆ Special Awards



What BEST Delivers

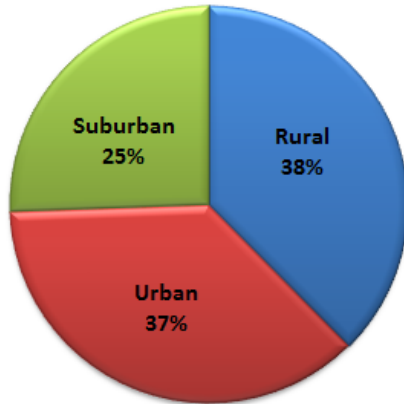
- ♦ BEST is less about building robots and more about teaching students how to analyze and solve problems
 - Simulates real-world constraints with limited time and resources
- ♦ The Engineering Design Process is the fundamental problem-solving tool BEST teachers and mentors use to help guide students through the design-and-construction phase of the program
- ♦ Over 3500 volunteers help run the local competitions and regional championships by serving as event personnel, judges, and team mentors
- ♦ What BEST students learn is what industry needs in its future workforce and what communities need in their future leaders

BEST Student Benefits

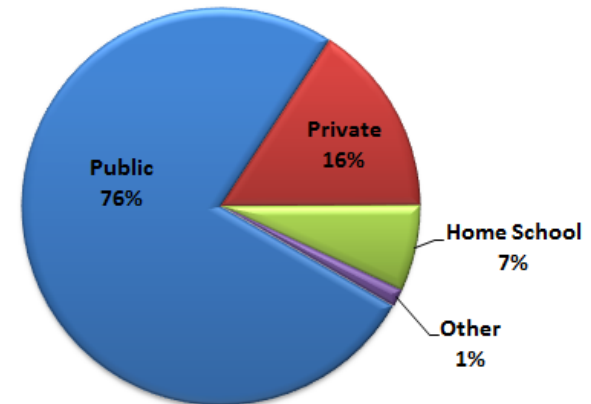


- ♦ Continue interest in STEM-related curriculum
- ♦ Increase understanding of technical concepts and scientific principles
- ♦ Provide real-world science and engineering challenges with limited resources
- ♦ Exposure to the engineering process with constrained time period – engineering is “demystified”
- ♦ Emphasize creative thinking, self-directed learning, and problem solving
- ♦ Experience “design-to-market” product development
- ♦ Promote team building and sportsmanship
- ♦ Receive recognition and acclaim typically reserved for their peers in sports

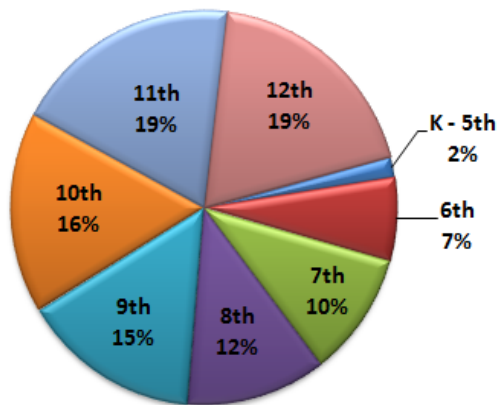
BRI Team Demographics



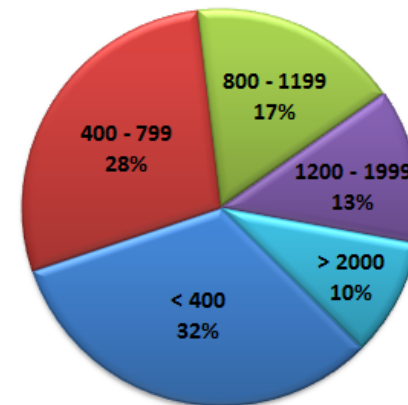
School Location



School Classification



Student Grades

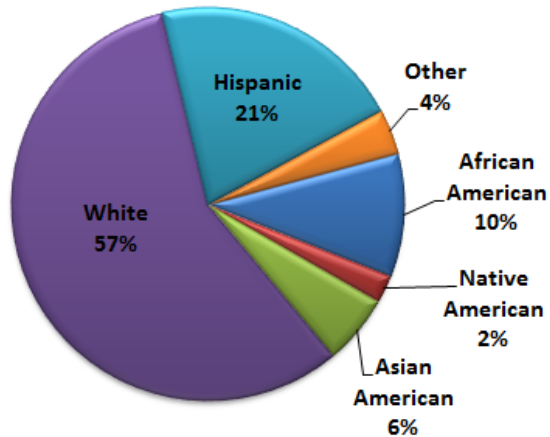


School Size

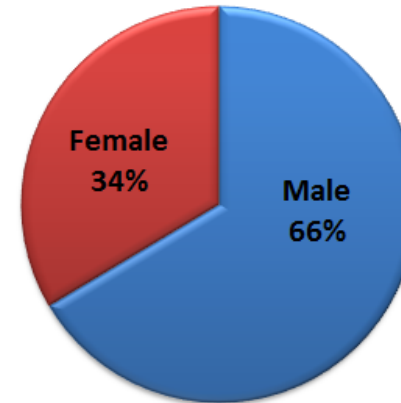
2014 data

BRI Team Demographics

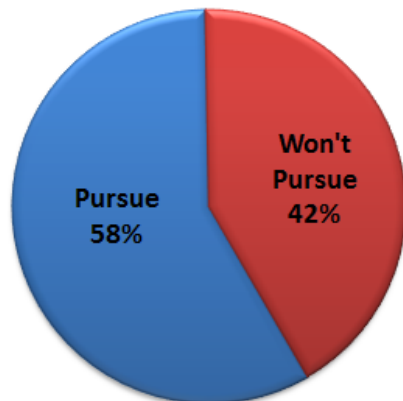
Ethnicity



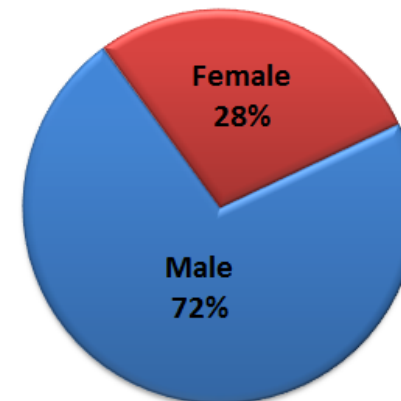
Gender



Plan to Pursue STEM Career, All



Pursue STEM Career, By Gender



Participants
2014 data

What is BEST?

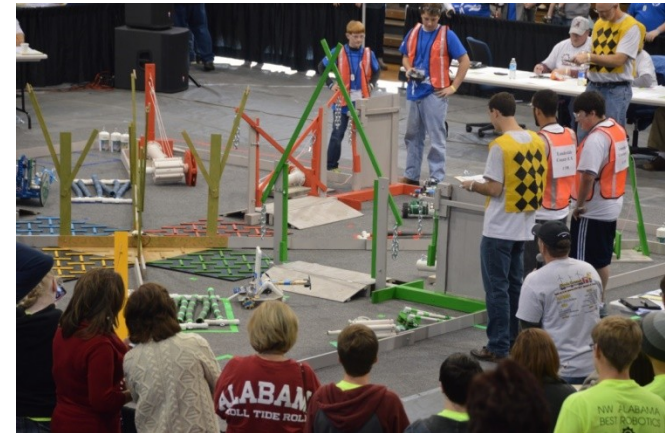
The excitement of **a basketball game!**

The challenge of **a science fair!**

The strategy of **a chess match!**

The pressure of **a sporting event!**

THIS IS BEST!!



**BEST gives students what they
need in the context of what
they want!**

BACKUP

BEST National Sponsors



BEST Expenses

- ♦ Each hub and regional championship financially self-supporting
 - Operated totally by volunteers
 - No paid staff so all funding goes towards students
 - Sponsor-provided funding covers
 - Equipment (“Returnables Kit”) and raw materials (“Consumables Kit”)
 - Competition venue rental and insurance
 - Materials to construct game field
 - Hub Funding Requirements
 - About \$1000 per team annually provides kits and competition
 - Each hub sponsors ~19 teams on average, 20 students per team
 - Regional Championship Funding Requirements
 - ~\$50K annually provides competition
 - About 20% of the top hub teams advance to regional championships

- ♦ **Annual cost < \$100 per student**